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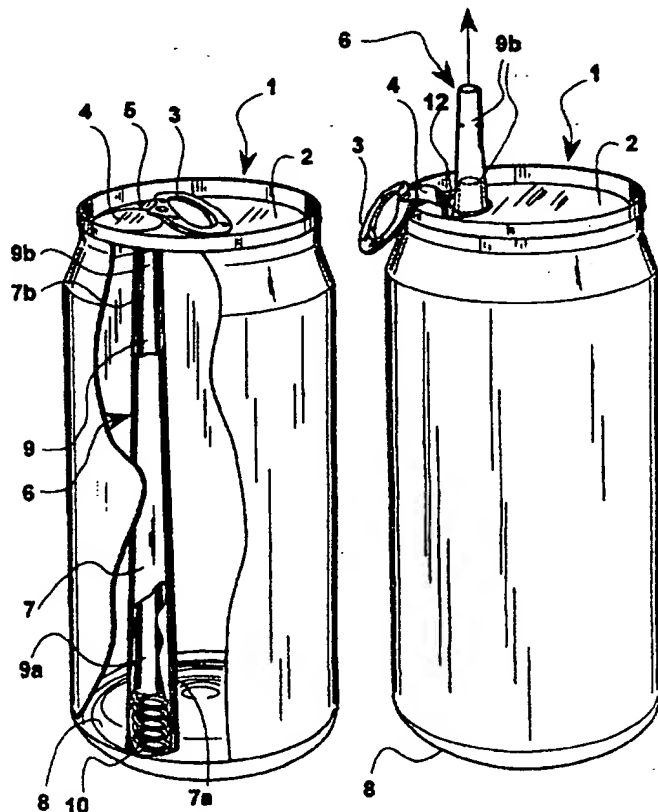


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/IT96/00206  <b>(22) International Filing Date:</b> 11 November 1996 (11.11.96)  <b>(30) Priority Data:</b> PG95U000027      9 November 1995 (09.11.95)      IT  <b>(71)(72) Applicant and Inventor:</b> CARUBINI, Stefano [IT/IT]; Fraz. Semonte, 117A, I-06024 Gubbio (IT).  <b>(74) Agent:</b> CELESTINO, Marco; ABM Agenzia Brevetti & Marchi, Via A. Della Spina, 40, I-56125 Pisa (IT).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

**(54) Title:** CONTAINER FOR DRINKS AND DRINKING STRAW PROVIDED THEREIN**(57) Abstract**

A container (1) for drinks, comprising a bottom wall (8) and a top wall (2) having a portion (4) which can be pulled to create an aperture (12). The container (1) comprises a straw element (6) having a lower end (7a, 9a) in contact with the bottom wall (8), and an upper end (7b, 9b) in contact with the top wall (2) when closed. Resilient means (10) are provided pushing the upper end (9b) against the closed top wall (2). When the aperture (12) is created, the resilient means (10) are released and the upper end (9b) of the straw element (6) protrudes from the top wall (2) thus allowing to have the drink. The straw element (6) may comprise an outer straw member (7) fixed in the container (1) and having inside an inner straw member (9) having the resilient means (10) at its lower end (9a), pushing its upper end (9b) against said top wall (2) when closed. Otherwise the straw element (6) has resilient means consisting in an helical tubular portion (20).



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TITLE

CONTAINER FOR DRINKS AND DRINKING STRAW PROVIDED THEREIN

DESCRIPTIONField of the invention

5       The present invention relates to a container for drinks already comprising a drinking straw inside, so that the latter is available when opening the container.

Description of the prior art

10       The problem of providing a clean drinking straw or other means for drinking for use with a container such as a beverage can is felt. In fact, drinking the beverage directly at the aperture of a can is not hygienic, since the can is normally exposed to dirt.

15       In some cases, container are provided for with a wrapped stiff drinking straw glued on their outer surface. However, a straw longer than the height of the container must be provided, and this is possible only with containers having flat lateral faces or with flexible containers. In case of cans which do not have  
20       flat lateral faces, the maximum length of a drinking straw could be the height of the can itself and could not be advantageously used to have all the beverage.

25       Beverage containers comprising drinking means provided inside already exist. For example, cans are known having an upper lid and a spout element automatically projecting from an opening on the lid when the opening is created by pulling a tab. In such a case, however, the drinking action cannot be performed by

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sucking the beverage, like when using a straw, and the can must be inclined to be emptied.

Cans are also known having inner straw members comprising floating means. The latter provides to the  
5 former a buoyancy force which enables a straw end to protrude from the opening of the lid after pulling the tab. The floating means, however, require means for aligning the straw with the opening, thus complicating the structure of the container.

10 It is an object of the present invention to provide a container for drinks of simple structure, already comprising a drinking straw inside, so that the latter is available when opening the container and allows to have the beverage without substantially inclining the  
15 container.

#### Summary of the invention

According to the present invention, a container for drinks is provided, comprising a straw element having a lower end in contact with the bottom wall of the  
20 container, and an upper end in contact with the top wall of the container when closed, resilient means are provided pushing the upper end against the closed top wall, said upper end of said straw element protruding from said top wall when an aperture is created in the  
25 latter.

In a first aspect of the invention, the straw element comprises an outer straw member fixed to said container between said top and said bottom walls and an

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inner straw member coaxially and freely inserted in said outer straw member. The inner straw member has said resilient means at its lower end, pushing its upper end against the top wall of the container so that the upper  
5 end of the inner straw member protrudes from the top wall when the aperture is created. Both the inner and the outer straw members are tapered, whereby pulling the upper end of the inner straw member causes the latter to  
fit in the outer straw member thus forming said straw  
10 element as a continuous body.

In a second aspect of the invention, the resilient means consists in an helical tubular portion comprised between the upper end and the lower end of the straw element. The helical tubular portion remains slightly  
15 compressed between the bottom and top wall when the latter is closed. After opening the top wall, the release of the helical tubular portion pushes the upper end outside the opening there created.

#### Brief description of the drawings

20 Further characteristics and advantages of the container according to the present invention will be made more apparent in the description which follows of two of its possible embodiments, given as examples, but not limitative, with reference to the above-mentioned  
25 drawings, in which:

- figures 1A and 1B show a perspective view of a beverage container according to a first aspect of the invention, with a drinking straw element in a first and a second

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operative position, respectively;

- figure 2 shows a perspective exploded view of a drinking straw element formed by an inner and an outer straw member;

5 - figures 3A, 3B and 3C show a cross sectional view of a drinking straw element according to a first embodiment of the invention in three operative positions.

- figures 4A and 4B show a perspective view of a beverage container according to a second aspect of the invention,  
10 with a drinking straw helical element in a first and a second position, respectively.

#### Description of the preferred embodiments

With reference to figures 1A and 1B, a beverage container such as a can 1 has a top wall 2 with a tab 3  
15 for pulling a wall portion 4 of the top wall 2 integral to the latter through a rupturable line 5.

As shown in figure 1A, a straw element 6 is provided having an outer straw member 7 fixed inside can 1 between a top wall 2 and a bottom wall 8 thereof, at  
20 upper end 7b and lower end 7a respectively of outer straw member 7, and an inner straw member 9 which is coaxially and freely inserted in outer straw member 7, as also illustrated in figures 2 and 3A. Inner straw member 9 has at its lower end 9a resilient means, in this case a coil  
25 spring 10, pushing its upper end 9b against top wall 2 when closed (fig. 1A).

As shown in figure 1B, when an aperture 12 is created in top wall 2 by pulling tab 3 and removing or

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at least bending wall portion 4, coil spring 10 is released and enables upper end 9b of inner straw member 9 to protrude from aperture 12. Spring 10 at rest (fig. 3B) is longer than in the compressed position of figure 3A so that, after opening the can, upper end 9b arrives to an intermediate position indicated by a dotted line in fig. 1A and shown in cross sectional view in fig. 3B.

As shown in said figures, both outer and inner straw members 7 and 9 are slightly tapered, whereby pulling upper end 9b up to the position of figures 3C and 1B causes inner straw member 9 to fit in outer straw member 7 thus forming straw element 6 as a continuous and whole body. Straw element 6 is clean and enables the user to drink fully the beverage contained in can 1, like a normal drinking straw.

Straw element 6 can be advantageously made of metallic material, such as the same aluminium metal normally used to make cans. In this case, outer straw member 7 may be welded to top wall 2 in a point 13 (figure 1B and 3C) near to the point where another welding must be made, to fix tab 5 to portion 4 of wall 2. Outer straw member 7 is also on contact with bottom wall 8, which has normally a curved shape. Therefore, an aperture 14 remains free under outer straw member 7 thus enabling the beverage to pass when sucked, in the direction of the arrows of figure 3C.

According to another aspect of the invention, as illustrated in figures 4A and 4B, a can 1 of the same type described above comprises a straw element 16 having



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a lower end 19a on contact with the curved bottom wall 8 of can 1, and an upper end 19b pushed against top wall 2 when closed (fig. 4A) by resilient means consisting in an helical tubular portion 20 comprised between upper end 5 19b and lower end 19a. Helical tubular portion 20 remains slightly compressed between bottom wall 8 and top wall 2 when the latter is closed. After opening top wall 2, as shown in figure 4B, in other words when an aperture 12 is created in top wall 2 by pulling tab 3 and removing or 10 at least bending wall portion 4, the release of helical tubular portion 20 pushes upper end 19b outside aperture 12.

Also in this second aspect of the invention straw element 16 is clean and enables the user to drink fully 15 the beverage contained in can 1, like a normal drinking straw.

In order to prevent straw element 16 from moving inside can 1 when closed, a tie element 21 is provided for loosely bent around upper end 19b and welded to top 20 wall 2.

With reference to both aspects of the invention above described and illustrated, in case bottom wall 8 were not curved, an opening can be made at lower end 7a or at lower end 19a to enable the beverage to be sucked 25 through straw element 6 or 16, respectively. Moreover, an housing may be advantageously provided for in bottom wall 8 for lower end 7b or 19b, to prevent them from moving with respect to a desired position.

The foregoing description of the specific

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embodiments will so fully reveal the general nature of the invention that others can, by applying current knowledge, readily modify and/or adapt for various applications such specific embodiments without undue experimentation and without departing from the generic concept, and, therefore, such adaptations and modifications should and are intended to be comprehended within the meaning and range of equivalents of the disclosed embodiments. The means and materials for  
5 carrying out various disclosed functions may take a variety of alternative forms without departing from the invention. It is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

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CLAIMS

1. A container (1) for drinks, comprising a top wall (2) and a bottom wall (8), said top wall having a portion (4) which can be pulled to create an aperture (12),  
5 characterized in that it comprises a straw element (6) having a lower end (7a, 9a, 19a) in contact with said bottom wall (8), and an upper end (7b, 9b, 19b) in contact with said top wall (2) when closed, resilient means (10, 20) being provided pushing the upper end (9b,  
10 19b) against the closed top wall (2), said upper end (9b, 19b) of said straw element (6, 16) protruding from said top wall (2) when said aperture (12) is created and said resilient means (10, 20) are released.

2. Container according to claim 1, wherein said straw  
15 element (6) comprises an outer straw member (7) having upper and lower ends (7b, 7a) on contact with said top wall (2) and said bottom wall (8) and an inner straw member (9) coaxially and freely inserted in said outer  
straw member (7), said inner straw member (9) having said  
20 resilient means (10) at its lower end (9a) pushing its upper end (9b) against said top wall (2) when closed, said upper end (9b) of said inner straw member (9) protruding from said top wall (2) when said aperture (12) is created.

25 3. Container according to claim 2, wherein both said inner and said outer straw members (7, 9) are tapered, said upper end (9b) of said inner straw member (9), when protruding from said top wall (2) through said aperture (12), allowing said inner straw member (9) to be pulled

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and to fit in said outer straw member (7) thus forming said straw element (6) as a continuous body.

4. Container according to the previous claims, wherein said straw element (6) is made of aluminum.

5 5. Container according to claims 2 to 4, wherein said outer straw member (7) has its upper end (7b) welded to said top wall (2) at said aperture (12).

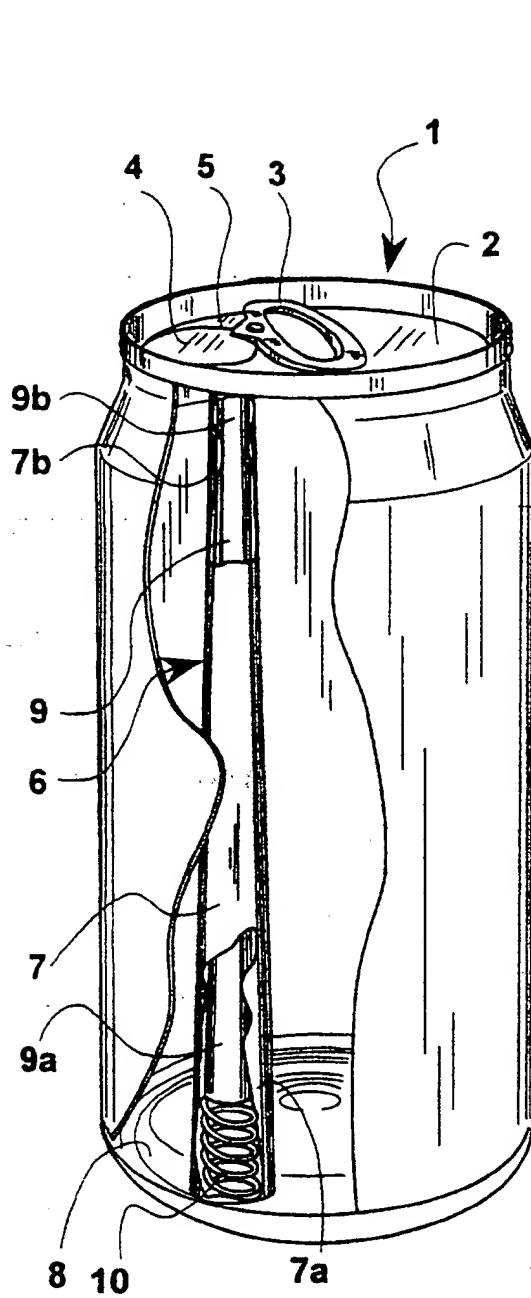
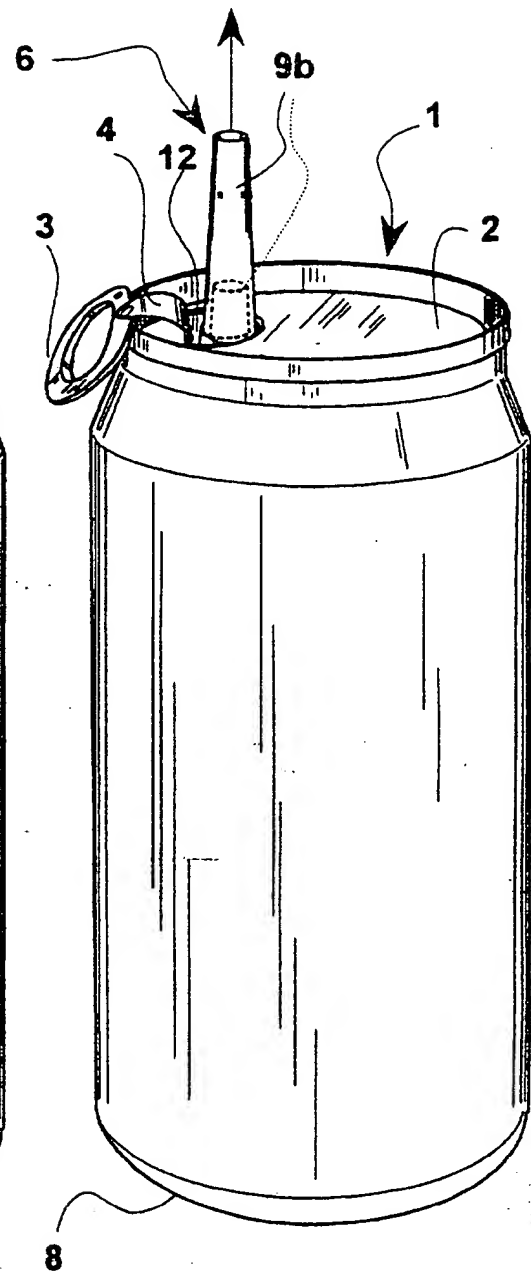
6. Container according to claim 1, wherein said straw element (6) has said resilient means consisting in an  
10 helical tubular portion (20) comprised between said upper end (19b) and said lower end (19a) of the straw element, said helical tubular portion (20) remaining compressed between said bottom (8) and top wall (2) when the latter is closed, the release of the helical tubular portion  
15 (20) when said aperture (12) is created pushing said upper end (19b) outside said aperture (12).

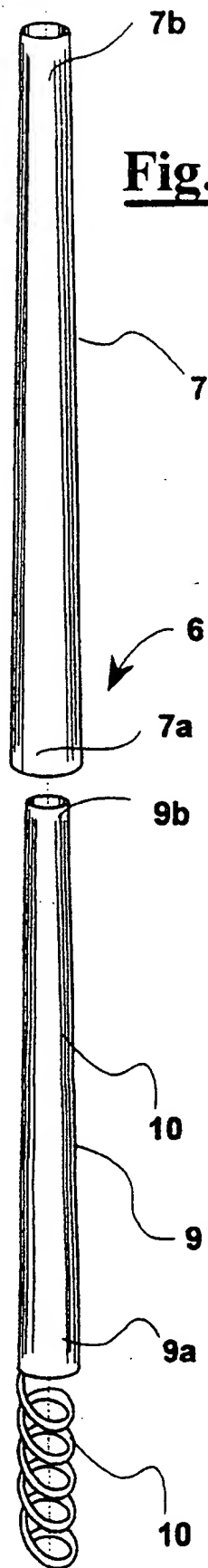
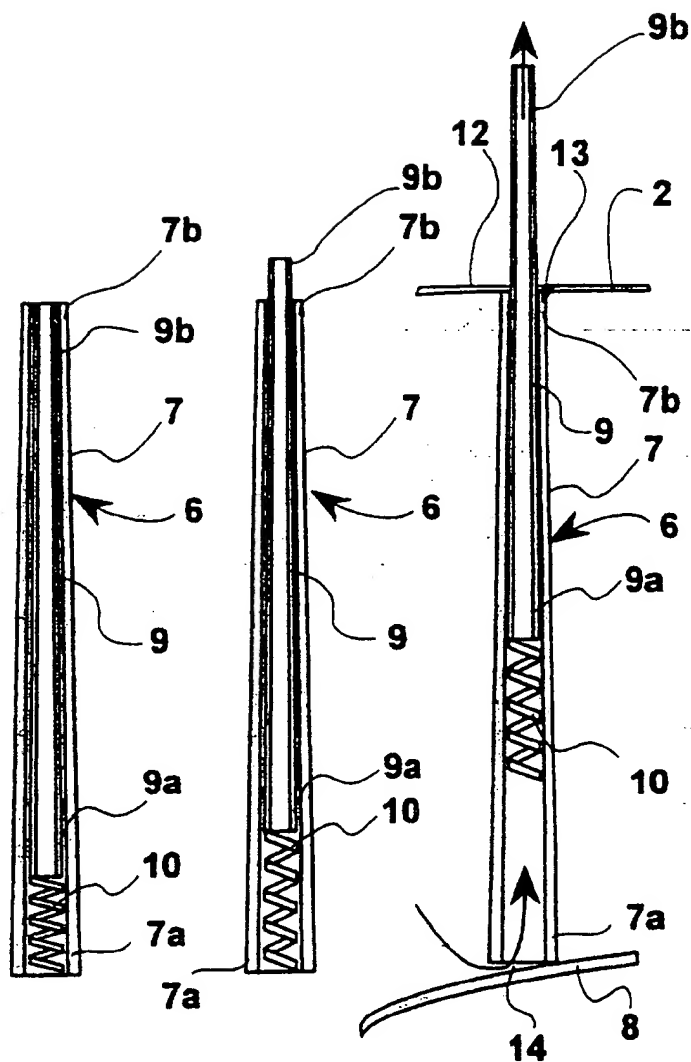
7. Container according to claim 6, wherein a tie element (21) is welded to said top wall (2) at said aperture (12) and is loosely bent around said straw element (16) at its  
20 upper end (19b).

8. Container according to the previous claims, wherein said bottom wall is curved.

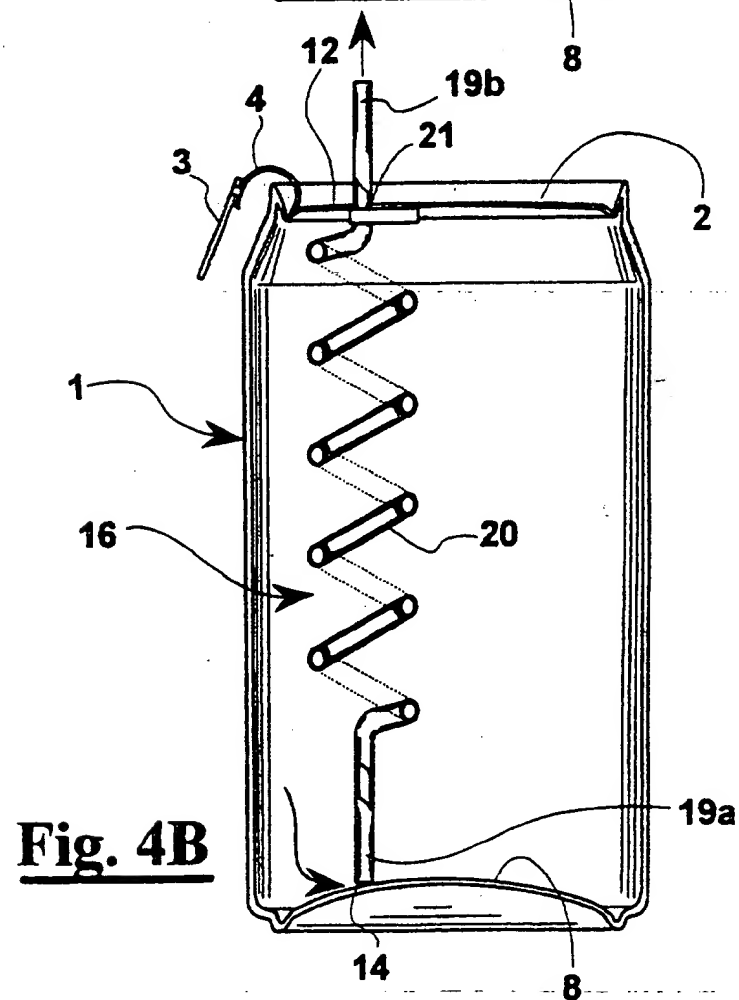
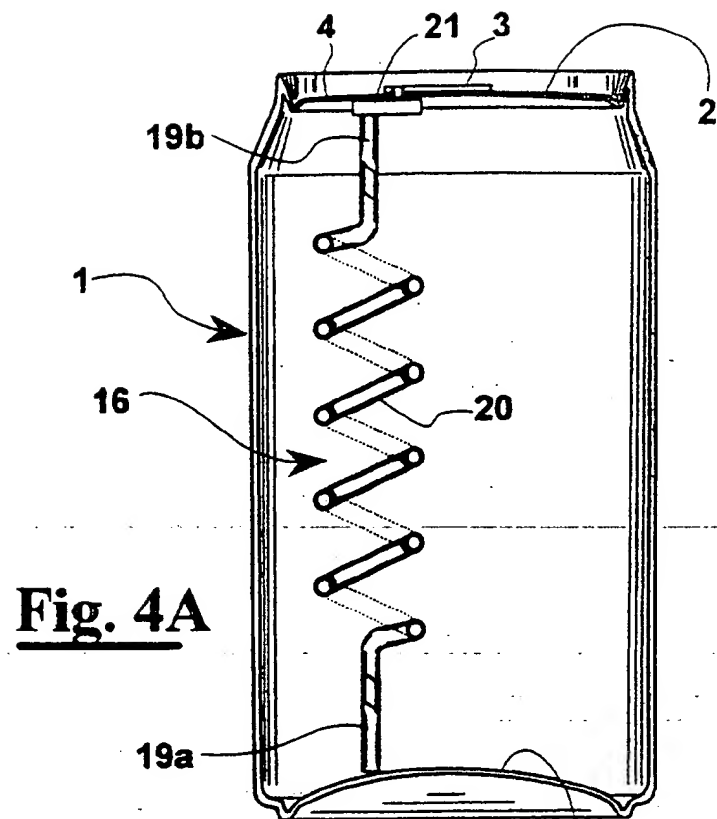
9. Container according to the previous claims, wherein a housing is provided for in said bottom wall for said lower  
25 end (7b 19b) of said straw element (6, 16), to prevent the latter from moving with respect to a desired position.

10.A container for drinks substantially as above described and illustrated with reference to the attached drawings.

**Fig. 1A****Fig. 1B**

**Fig. 2****Fig. 3A Fig. 3B Fig. 3C**

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## INTERNATIONAL SEARCH REPORT

 Intern. Application No  
 PCT/IT 96/00206

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B65D77/28

According to International Patent Classification (IPC) or to both national classification and IPC

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 253 779 A (LEE) 19 October 1993 see the whole document ---	1,2,6,10
X	DE 37 08 750 A (MEISTER SIEGFRIED) 29 September 1988	1,6,10
A	see column 3, line 20 - line 54; figures ---	7,9
X,P	FR 2 719 562 A (FOURNEAU ROBERT ;FOURNEAU CLAUDE) 10 November 1995	1,6,8,10
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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